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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/982,190	10/19/2001	Banqin Wu	215070US0	7173

22850 7590 07/28/2004

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1940 DUKE STREET  
ALEXANDRIA, VA 22314

EXAMINER
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VALENTINE, DONALD R

ART UNIT	PAPER NUMBER
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1742

DATE MAILED: 07/28/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	<b>Application No.</b> 09/982,190	<b>Applicant(s)</b> WU ET AL.	
	<b>Examiner</b> Donald R. Valentine	<b>Art Unit</b> 1742	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) ☒ Responsive to communication(s) filed on 6/9/04.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) ☐ Claim(s) 1-29 is/are pending in the application.  
     4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 10-24 is/are allowed.
- 6) ☒ Claim(s) 1, 2, 9 and 25-27 is/are rejected.
- 7) ☒ Claim(s) 3-8, 28 and 29 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
     Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
     Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
     a) ☐ All    b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)  | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

**DETAILED ACTION**

***Claim Rejections - 35 USC § 102***

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. Claims 1-2 and 9 are rejected under 35 U.S.C. 102(b) as being anticipated by White et al.

White et al show providing an ore containing a metallic element (copper); reacting chlorine gas with the ore to form a chloride of the ore (copper chloride); mixing the chloride in an ionic liquid to a temperature of 0° C to 200° C. to form an electrolyte. (See column 4, lines 40-43). Copper (metal) is electrodeposited at cathode (20) and at least a portion of the chlorine gas from the electrolysis is fed to the chlorine ore reactor. (See col.2, lines 49-72; col. 3, lines 1-32).

As for claim 2, the reference teaches drying (dehydrating) before reacting with chlorine. See col. 4, lines 1-3.

As for claim 9, the drawing fig shows the chlorine product as being collected and fed to the chlorine ore reactor. The arrangement appears to enable "more than 80%" because the cell appears to have a closed takeoff conduit.

3. Claims 25-27 are rejected under 35 U.S.C. 102(b) as being anticipated by Portal et al.

The reference shows an electrolysis cell comprising a "porous basket" with conductive particles and which functions as a cathode. The cell contains an "ionic liquid" and chloride is disclosed. See figures and col. 4, lines 31-25.

As for claim 26, the basket is of stainless steel. Col. 4, lines 65-68. The particles are carbon (Claim 27).

***Allowable Subject Matter***

4. Claims 10-24 are allowed.
5. Claims 3-8, 28-29 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.
6. The following is a statement of reasons for the indication of allowable subject matter: The references of record do not show or suggest providing a starting material containing a metallic element, dissolving the metallic element contained in the starting material in an electrolyte comprising an ionic liquid at a temperature from 0°C to 200°C and electrodepositing the metallic element contained in the electrolyte on a cathode wherein the ionic liquid comprises 1-butyl-3-methylimidazolium chloride.

***Conclusion***

7. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Kawatra et al show processing metallic iron ore.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Donald R. Valentine whose telephone number is 571-272-1250. The examiner can normally be reached on Monday-Friday 9:30-6:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Roy King can be reached on 571-272-1244. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Donald R. Valentine  
Primary Examiner  
Art Unit 1742

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July 26, 2004